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"Welcome Shelter Near Trail's End"

FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

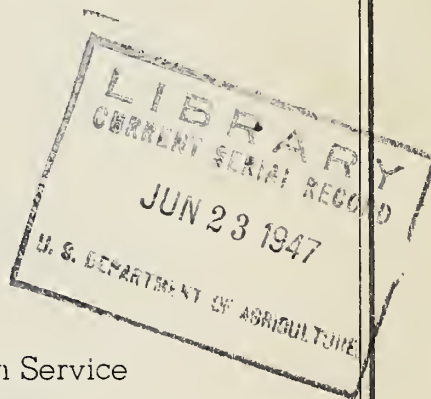
for

ARIZONA

MARCH 15, 1947

By

Division of Irrigation, Soil Conservation Service
United States Department of Agriculture



Data included in this report were obtained by the agency named above in cooperation with the Federal, State, and local organizations listed on the last page of this report.

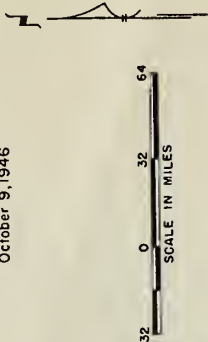
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FOR
ARIZONA

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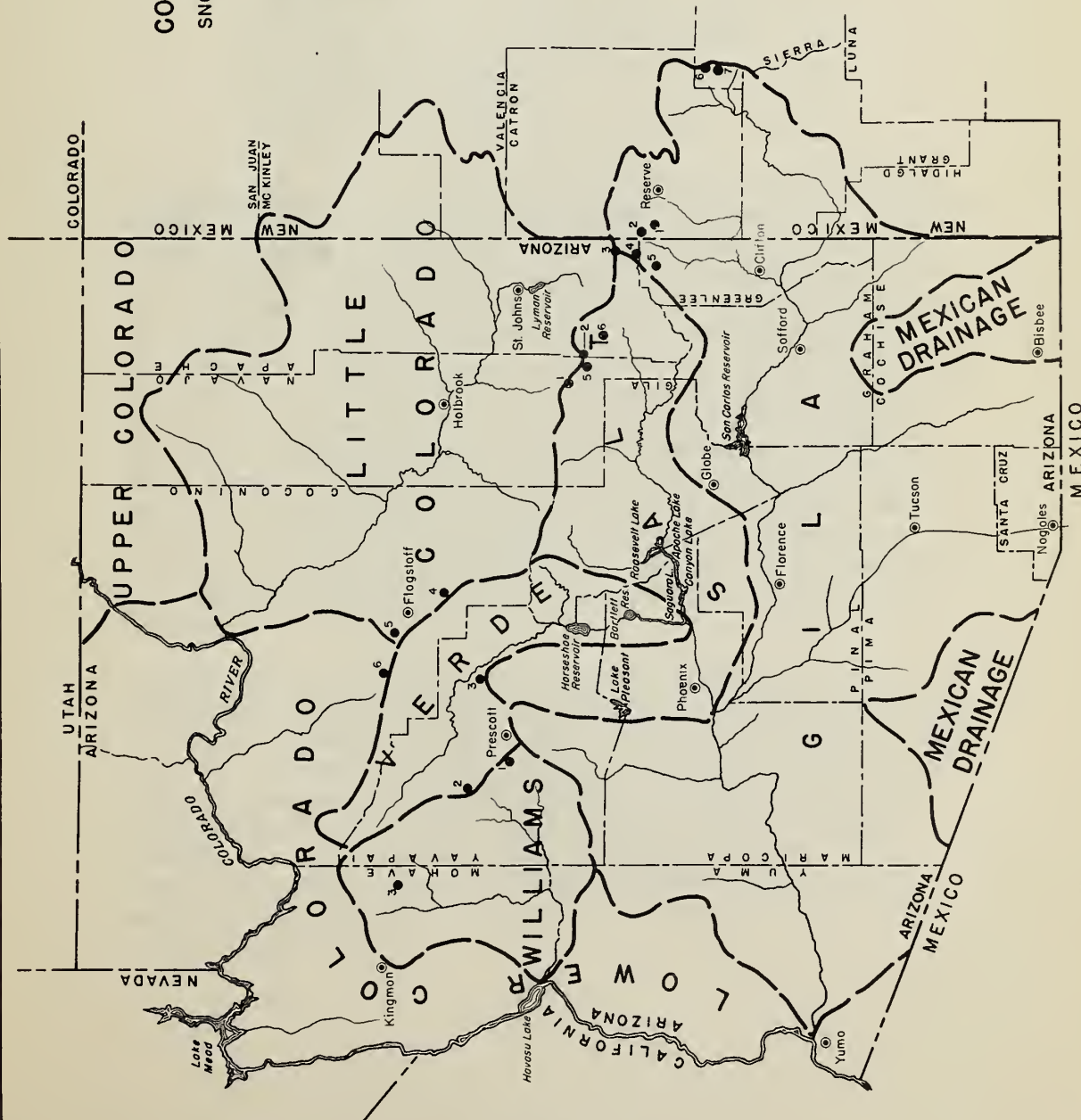
ARIZONA COOPERATIVE SNOW SURVEYS SNOW COURSES AND DRAINAGE BASINS

October 9, 1946



INDEX TO SNOW COURSES

NUMBER	NAME	ELEVATION
LITTLE COLORADO RIVER		
1.	Forest Dale	6,000
2.	McNary	7,200
3.	Harrison	8,500
4.	San Juan	7,550
5.	Fort Valley	7,550
WILLIAMS RIVER		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Willow Ranch	5,000
CILA RIVER		
1.	Prisco Divide	8,000
2.	State Line	8,000
3.	Harrison	8,000
4.	Harrison Trail	8,000
5.	Beaver Head	8,000
6.	Taylor Creek	7,850
7.	Iman	7,800
VEDE RIVER		
1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Willow Ranch	5,000
4.	Harrison	8,000
5.	Harrison Lake	7,350
6.	Fort Valley	7,550
7.	Chandler	7,100
SALT RIVER		
1.	Forest Dale	6,000
2.	McNary	7,200
3.	Harrison	8,500
4.	Cerrado Trail	8,000
5.	Milk Ranch	7,000
6.	McNary	8,250



WATER SUPPLY OUTLOOK

Arizona
March 15, 1947

* * * * *

* An acute shortage of irrigation water *
* is imminent throughout the major irri-*
* gated areas of Arizona. Storage in *
* practically all reservoirs is near an *
* all time low for this date. Spring *
* and early summer runoff from major *
* streams will probably be less than 50 *
* percent of normal. *

* * * * *

Precipitation Precipitation throughout the mountains and valleys of the state continues far below normal. On Little Colorado Watershed precipitation since February 1 is about 20 percent of normal and 70 percent of last year while the Gila is greater than last year but only 30 percent of normal. For the same period the Salt and Verde Watersheds have received about the same amount of precipitation as last year but only 30 and 20 percent of normal respectively. Williams River Drainage has received about 60 percent of last year's precipitation and only 10 percent of normal. Below normal precipitation would not be too serious if the early part of the water year had been above normal. But with early shortages of precipitation and low reservoir storage, the lack of precipitation late in the storage season reflects the growing seriousness of the Arizona water shortage.

Snow Cover This is the first March 15 during the period of snow survey records that all snow courses on the watersheds of Little Colorado, Verde, Gila, Salt and Williams have been bare of measurable snow. The one snow course which keeps Arizona from being completely blank is the new course at Bright Angel on the north rim of Grand Canyon, surveyed through the cooperation of Grand Canyon National Park. At present there are about two feet of snow on this course which is far below the average as observed by long time residents of the area.

Runoff Stream discharge from practically every basin throughout the state continues subnormal. One exception is Little Colorado, which was about 130 percent of normal during February and about 230 percent from October 1 to date. During the past month Salt River discharged about 70 percent of normal while the cumulative runoff since October 1 was slightly over 110 percent. Verde River is showing the effects of the drought, with the runoff during the previous month only 50 percent of normal and the cumulative discharge for the water year decreasing to 90 percent. Gila River continues seriously low with the February and cumulative discharge about 50 and 80 percent of normal respectively. Most of the major streams are showing a slight decrease in runoff at this time. This situation is not uncommon as it usually precedes the spring snow melting period of late March and April when the streams again rise. This year the absence of snow on the higher elevations of the watersheds indicates that the stream discharge recovery will be dangerously low.

Reservoir Storage Storage in important Arizona reservoirs remains far below normal in almost every case. Bartlett and Horseshoe Reservoirs on Verde River are in better shape than at the same date last year, but contain only about 30 percent of the March 15 average storage on Verde River. As of March 15 Lyman contains more water than in any previous year with the exception of 1940 when it stored slightly over 20,000 acre-feet. Salt River Reservoirs and Lake Pleasant contain about 75 and 65 percent of last year and only 10 and 50 percent of the 1936-1945 average for this date. San Carlos Reservoir is now storing 60 percent of 1946 and only 6 percent of the 1936-45 average for March 15. Storage in Lake Mead continues to decrease with the present position lower than at any time since 1938, which was the latter period of its initial filling.

ARIZONA SNOW SURVEYS MARCH 15, 1947

LOCATION				SNOW COVER MEASUREMENTS					
DRAINAGE BASIN and SNOW COURSE	Number	Sec. Twp. Rge. Elev.	Date of Survey	Snow Depth (inches)	Water Content (inches)		Past Record Years of Record	Av. Water Content (inches)	
					1947	Same Approx. date 1945 1946			
LITTLE COLORADO RIVER									
Forest Dale	1	2 9N 21E 6000	3/18	No	Snow	0	0.9	6	
McNary	2	14 8N 23E 7200	3/18	Trace		0.6	2.8	8	
Nutriosio	3	23 6N 30E 8500	3/15	No	Snow	0	1.6	8	
Mormon Lake	4	13 18N 8E 7350	3/17	No	Snow	NEW SNOW	COURSE		
Fort Valley	5	22 22N 6E 7350	3/17	No	Snow	"	"	"	
WILLIAMS RIVER									
Iron Springs	1	22 14N 3W 6200	3/12	No	Snow	0	NEW SNOW	COURSE	
Camp Wood	2	3 16N 6W 5700	3/15	No	Snow	0.2	"	"	
Willow Ranch	3	16 21N 11W 5000	3/15	No	Snow	0	"	"	
GILA RIVER									
Frisco Divide	1	31 6S 20W 8000	3/15	No	Snow	0.2	3.4	8	
State Line	2	6 6S 21W 8000	3/15	No	Snow	0	4.4	8	
Nutriosio	3	23 6N 30E 8500	3/15	No	Snow	0	1.6	8	
Coronado Trail	4	26 5N 30E 8000	3/15	No	Snow	0	4.4	8	
Beaver Head	5	13 4N 30E 8000	3/15	No	Snow	0	4.4	8	
Taylor Creek	6	20 10S 10W 7850	3/15	No	Snow	0	0	4	
Inman	7	6 11S 10W 7800	3/15	No	Snow	NEW SNOW	COURSE		

ARIZONA SNOW SURVEYS MARCH 15, 1947

DRAINAGE BASIN and SNOW COURSE		LOCATION		SNOW COVER MEASUREMENTS											
				Number	Sec. Twp. Rge. Elev.	Date of Survey	Snow Depth (inches)	Water		Past Record					
								Content (inches)	1947	Same Approx. date	1945	Years of Record	Av. Water Content (inches)		
VERDE RIVER															
Iron Springs	1	22	14N	3W	6200	3/12	No	Snow	0	NEW	SNOW	COURSE			
Camp Wood	2	3	16N	6W	5700	3/15	No	Snow	0.2	"	"	"			
Mingus Mountain	3	3	15N	2E	7100	3/16	No	Snow	NEW	SNOW	COURSE				
Mormon Lake	4	13	18N	8E	7350	3/17	No	Snow	"	"	"	"			
Fort Valley	5	22	22N	6E	7350	3/17	No	Snow	"	"	"	"			
Chalender	6	27	22N	3E	7100	3/15	No	Snow	"	"	"	"			
SALT RIVER															
Forest Dale	1	2	9N	21E	6000	3/18	No	Snow	0	0.9	8				
McNary	2	14	8N	23E	7200	3/18	Trace		0.6	2.8	8				
Nutriosio	3	23	6N	30E	8500	3/15	No	Snow	0	1.6	8				
Coronado Trail	4	26	5N	30E	8000	3/15	No	Snow	0	4.4	8				
Milk Ranch	5	28	8N	23E	7000	3/18	No	Snow	0.5	0.4	7				
LOWER COLORADO															
Bright Angel	1	34	33N	R3E	8400	3/15	24.5	7.8	NEW	SNOW	COURSE				
Grand Canyon	2		31N	R2E		3/15	No	Snow	"	"	"				
Fort Valley	5	22	22N	R6E	7350	3/17	No	Snow	"	"	"				
Chalender	6	27	22N	R3E	7100	3/15	No	Snow	"	"	"				

STATUS OF RESERVOIR STORAGE, March 15, 1947

BASIN And STREAM	RESERVOIR	USABLE	CAPACITY THOUSANDS ACRE FEET IN STORAGE					About Mar. 15
		(Thous. A.F.)	1947	1946	1945	1944	10-yr. avg. 1936-1945	
Agua Fria	Lake Pleasant	179	3	4	10	27	38	
Colorado	Lake Havasu	688	621	616	592	611	537 ^a	
Colorado	Lake Mead	27,935	16,431	18,056	18,384	19,435	19,964 ^a	
Gila	San Carlos	1,200	18	29	110	278	284	
Little Colorado	Lyman	29	14	4	3	4		
Salt River	Salt River ^c	1,771	432	671	940	1,133	912	
Verde	Bartlett	179	24	2	38	115	109 ^b	
Verde	Horseshoe	67	10	9	NEW RESERVOIR			

a - Average for years 1939 through 1945

b - Average for years 1941 through 1945

c - Includes Roosevelt, Apache, Saguaro and Canyon Lakes

LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Forest Dale	Ward T. Kindred
McNary	Ward T. Kindred
Nutriosos	R.L. Diggs
Mormon Lake	M.F. Greaves
Fort Valley	E.C. Martin
Iron Springs	Ernest Saxby
Camp Wood	Mrs. C.C. Merritt
Willow Ranch.	Tiny Miller
Frisco Divide	Dean M. Earl
Coronado Trail	R.L. Diggs
Beaver Head	Jes Burke
Taylor Creek	F.M. Inman
Inman	F.M. Inman
Mingus Mountain	Harold Linn
Chalender	V.J. Schroeder
Milk Ranch	Ward T. Kindred
State Line	Dean M. Earl
Bright Angel	Carlus LeaMaster
Grand Canyon	W.J. Kennedy

The following organizations cooperate in the Arizona snow survey work:

STATE

Nevada Agricultural Experiment Station
Reno, Nevada

FEDERAL

Department of Agriculture
Forest Service
Apache Forest
Coconino Forest
Gila Forest
Kaibab Forest
Southwestern Forest and Range Exptl.
Sta.; Fort Valley, Arizona
Soil Conservation Service
Division of Irrigation

Department of Commerce
Weather Bureau
Arizona Section

Department of Interior
Bureau of Reclamation
Region III
Geological Survey
Arizona District
Indian Service
Fort Apache Reservation
National Park Service
Grand Canyon National Park

Gila Water Commissioner
Safford, Arizona

IRRIGATION PROJECTS

Salt River Valley Water Users Association
Phoenix, Arizona

San Carlos Irrigation and Drainage District
Coolidge, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

